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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,451	07/16/2002	Donna K. Johnson	BUR920010219	5792
29154	7590	11/30/2004	EXAMINER	
FREDERICK W. GIBB, III MCGINN & GIBB, PLLC 2568-A RIVA ROAD SUITE 304 ANNAPOLIS, MD 21401			KACKAR, RAM N	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/064,451

Applicant(s)

JOHNSON ET AL.

Examiner

Ram N Kackar

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-15 and 17-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-15 and 17-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-7, 9-15 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honma et al (US 6596086) in view of Hoshina et al (US 5785764).

Honma et al disclose a susceptor having a pocket to hold substrate having an inner edge and a lower surface (Fig 1 5a) and opening in lower surface for lift pins to lift the substrate (5b

Honma et al do not disclose plurality of beveled edge projections extending radially inward from the inner edge

Hoshina et al disclose a susceptor with a pocket to hold a substrate, plurality of C shaped projections (Fig 5A-17) extending radially inwards at an acute angle of 80 degrees (complementary 10 degrees) with respect to bottom of pocket (Col 3 lines 10-43 and Col 7 lines 5-15). Inherently these projections maintain a gap below the projection and restrict the movement of the standard substrate with a straight edge.

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to have a plurality of projection in order to hold substrate in position with a very small area of contact.

Regarding the limitation of the angle being even slightly greater than 80 degrees, it should be understood that slight variability of angle would be obvious in view of experimental optimization and difficulty of maintaining close tolerance.

3. Claims 1-7, 9-15 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhao et al (US5968379) in view of Hoshina et al (US 5785764).

Zhao et al disclose a susceptor having a pocket to hold substrate having an inner edge and a lower surface (Fig 2-34) and opening in lower surface for lift pins to lift the substrate (Col 11 line 1-18 and Col 19 lines 1-8).

Zhao et al do not disclose plurality of beveled edge projections extending radially inward from the inner edge

Hoshina et al disclose a susceptor with a pocket to hold a substrate, plurality of C shaped projections (Fig 5A-17) extending radially inwards at an acute angle of 80 degrees (complementary 10 degrees) with respect to bottom of pocket (Col 3 lines 10-43 and Col 7 lines 5-15). Inherently these projections maintain a gap below the projection and restrict the movement of the standard substrate with a straight edge.

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to have a plurality of projection in order to hold substrate in position with a very small area of contact.

#### ***Response to Amendment***

Applicant's arguments filed 10/22/2004 have been fully considered but they are not persuasive.

Applicant argues that Hoshina teaches away from applicants claimed invention.

Since Hoshina discloses angle of 80 degrees, it is in overlapping range with the claim of 80-85 degrees. Hoshina's statement quoted by the applicant is in regards to process dependent situation "during deposition of thick film" and would be expected if the contact area is large and deposition goes on for long duration. If the angle is say 80.1 degrees it is not suddenly going to make it unworkable for normal duration of process.

Applicant argues that the criticality of the acute angle being greater than 80 degrees is that the beveled side of the wall of projection reduces the contact area between the projection 115 and the substrate 102 (120), thereby reducing the possibility that the substrate will stick within the pocket of the apparatus 100.

Contrary to applicant's suggestion, however, increasing the angle will increase the contact area and not reduce it.

Applicant argues that Hoshina does not provide lift pins and is suggestive of not being incorporating in heavy wafer processing. Applicant goes on to assert that if the angle is less than 80 degrees scratches result on the edge of the wafer due to excessive contact between wafer and retainer.

Applicant's assertion that "Hoshina does not provide lift pins and is suggestive of not being incorporating in heavy wafer processing" is mere speculation without any evidence.

Applicant argues that scratches appear when the angle is less than 80 and no scratches are observed when the angle is more than 80 degrees. There is no mention of the amount of scratches when the angle is exactly 80 degrees. Also absent is, any substantiation of this assertion with any experimental data.

This discussion should also be seen in the light of the specification as below:

Figure 2 also illustrates angles 200, 201 that formed by the beveled sidewall of the projection 115. The region 205 is shown in magnified form in Figure 3. The angle 200 is generally between 5 and 10 degrees, although the invention is not limited to this specific range of angles, but is applicable to all ranges of appropriate angles, depending upon the specific application being addressed. Therefore, the angle 201 comprises an acute angle. Thus, the angle between the bottom of the pocket 125 and the linear inclined surface of the projection 115 is less than 90 degrees (e.g., 80-85 degrees). The beveled side wall of the projection 115 further reduces the contact area between the projection 115 and the substrate 120, thereby further reducing the possibility that the substrate 120 will stick within the pocket 125 of the apparatus 100.

The specification does not indicate that an angle even slightly greater than 80 has any critical importance. On the other hand an angle less than 90 appears to be advantageous.

Absent, showing of a clear advantage of an angle even slightly greater than 80 degrees in view of disclosed angle of 80 degrees in the prior art this limitation is not considered non-obvious.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 571 272 1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RK

*P. Hassanzadeh*  
*Primary Examiner*  
*AU 1763*

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